IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A method of removing fluoro-carbon polymer chamber residue from a plasma processing system, comprising:

introducing a process gas ~~including a gas containing carbon and oxygen~~ into a process chamber of the plasma processing system, the process gas consisting of at least one of carbon monoxide, carbon dioxide, an alcohol, an aldehyde or a ketone, or at least one of these molecules in combination with one or more of H_2, NH_3, H_2O, N_2 or an inert gas;

generating a plasma from the process gas;

exposing the fluoro-carbon polymer chamber residue to the plasma in a waferless dry cleaning process to form a volatile reaction product from the residue, where a shield wafer is not provided on a substrate holder of the plasma processing system so that the substrate holder is cleaned by the waferless dry cleaning process; and

exhausting the reaction product from the process chamber.

Claim 2 (Canceled).

Claim 3 (Original): The method according to claim 1, wherein the exposing further comprises providing a substrate on a substrate holder in the process chamber.

Claim 4 (Original): The method according to claim 1, further comprising performing at least one manufacturing process in the process chamber before repeating the introducing, generating, exposing, and exhausting.

Claims 5-6 (Canceled).

Claim 7 (Original): The method according to claim 1, wherein the introducing a process gas comprises introducing an inert gas containing at least one of Ar, He, or Xe.

Claim 8 (Original): The method according to claim 1, wherein the introducing comprises flowing the process gas at a gas flow rate between about 100 sccm and about 5,000 sccm.

Claim 9 (Canceled).

Claim 10 (Currently Amended): The method according to claim [[5]] 1, wherein the introducing comprises flowing the at least one of carbon monoxide, carbon dioxide, an alcohol, an aldehyde, or a ketone at a gas flow rate between about 100 sccm and about 2,000 sccm.

Claim 11 (Currently Amended): The method according to claim [[6]] 1, wherein the introducing comprises flowing the at least one of H_2, NH_3, H_2O, or N_2 at a gas flow rate between about 20 sccm and about 1000 sccm.

Claim 12 (Currently Amended): The method according to claim [[7]] 1, wherein the introducing comprises flowing the inert gas at a gas flow rate less than about 2,000 sccm.

Claim 13 (Original): The method according to claim 1, wherein the introducing further comprises maintaining a pressure between about 10 mTorr and about 5 Torr in the process chamber.

Claim 14 (Original): The method according to claim 1, wherein the introducing further comprises maintaining a pressure between about 20 mTorr and about 1 Torr in the process chamber.

Claim 15 (Original): The method according to claim 1, wherein the plasma processing system comprises upper and lower electrodes, and wherein the generating comprises applying RF frequency between about 1 MHz and about 100 MHz and RF power between about 100 W and about 4,000 W to the electrodes.

Claim 16 (Original): The method according to claim 15, wherein the RF frequency applied to the upper electrode is between about 40 MHz and about 80 MHz and the RF power applied to the upper electrode is between about 600 W and about 900 W, and wherein the RF frequency applied to the lower electrode is between about 1 MHZ and about 3 MHz and the RF power applied to the lower electrode is between about 100 W and about 400 W.

Claim 17 (Original): The method according to claim 1, wherein the exposing is carried out for a time period between about 2 seconds and about 240 seconds.

Claim 18 (Original): The method according to claim 1, wherein the exposing is carried out for a time period between about 15 seconds and about 40 seconds.

Claim 19 (Original): The method according to claim 1, further comprising:

monitoring a signal from the plasma processing system, the signal being indicative of the progress of the dry cleaning method; and

based upon the signal, performing one of the following:

(a) continue performing the dry cleaning process and continue monitoring, or

(b) stopping the cleaning process.

Claim 20 (Original): The method according to claim 19, wherein the monitoring further comprises determining if an intensity level of the signal has reached a threshold value.

Claim 21 (Original): The method according to claim 20, wherein performing (b) occurs after determining that the threshold value has been reached.

Claim 22 (Original): The method according to claim 19, wherein the monitoring comprises using an optical monitoring system to detect light emission from the process chamber.

Claim 23 (Original): The method according to claim 22, wherein the monitoring comprises monitoring emitted that light originates from at least one of carbon monoxide, fluorine, or silicon tetrafluoride.

Claim 24 (Original): The method according to claim 19, wherein the monitoring comprises using a mass sensor to detect a mass signal of a gas in the process chamber.

Claim 25 (Original): The method according to claim 19, wherein the monitoring comprises using a particle monitoring system to detect particle levels in the process chamber.

Claim 26 (Original): The method according to claim 19, wherein the monitoring comprises using a process parameter including at least one of RF generator peak-to-peak voltage or capacitor position in an impedance match network to detect a plasma condition in the process chamber.

Claim 27 (Currently Amended): A system for removing fluoro-carbon polymer chamber residue from a plasma processing system, comprising:

a gas introduction system configured to introduce a process gas ~~including a gas containing carbon and oxygen~~ into a process chamber of the plasma processing system, the process gas consisting of at least one of carbon monoxide, carbon dioxide, an alcohol, an aldehyde or a ketone, or at least one of these molecules in combination with one or more of H_2, NH_3, H_2O, N_2 or an inert gas;

a plasma generating system configured to generate a plasma from the process gas such that the fluoro-carbon polymer chamber residue is exposed to the plasma in a waferless dry cleaning process to form a volatile reaction product from the residue, where a shield wafer is not provided on a substrate holder of the plasma processing system so that the substrate holder is cleaned by the waferless dry cleaning process; and

a exhaustion system configured to exhaust the reaction product from the process chamber.

Claim 28 (Currently Amended): A system for removing fluoro-carbon polymer chamber residue from a plasma processing system, comprising:

means for introducing a process gas ~~including a gas containing carbon and oxygen~~ into a process chamber of the plasma processing system, the process gas consisting of at least

one of carbon monoxide, carbon dioxide, an alcohol, an aldehyde or a ketone, or at least one of these molecules in combination with one or more of H_2, NH_3, H_2O, N_2 or an inert gas;

means for generating a plasma from the process gas such that the fluoro-carbon polymer chamber residue is exposed to the plasma in a dry cleaning process to form a volatile reaction product from the residue, where a shield wafer is not provided on a substrate holder of the plasma processing system so that the substrate holder is cleaned by the waferless dry cleaning process; and

means for exhausting the reaction product from the process chamber.

Claim 29 (New): The method of claim 1, wherein the process gas consists of CO, CO_2 or at least one of these molecules in combination with an inert gas.

Claim 30 (New): The method of claim 29, wherein the process gas consists of pure CO, or CO in combination with Ar.